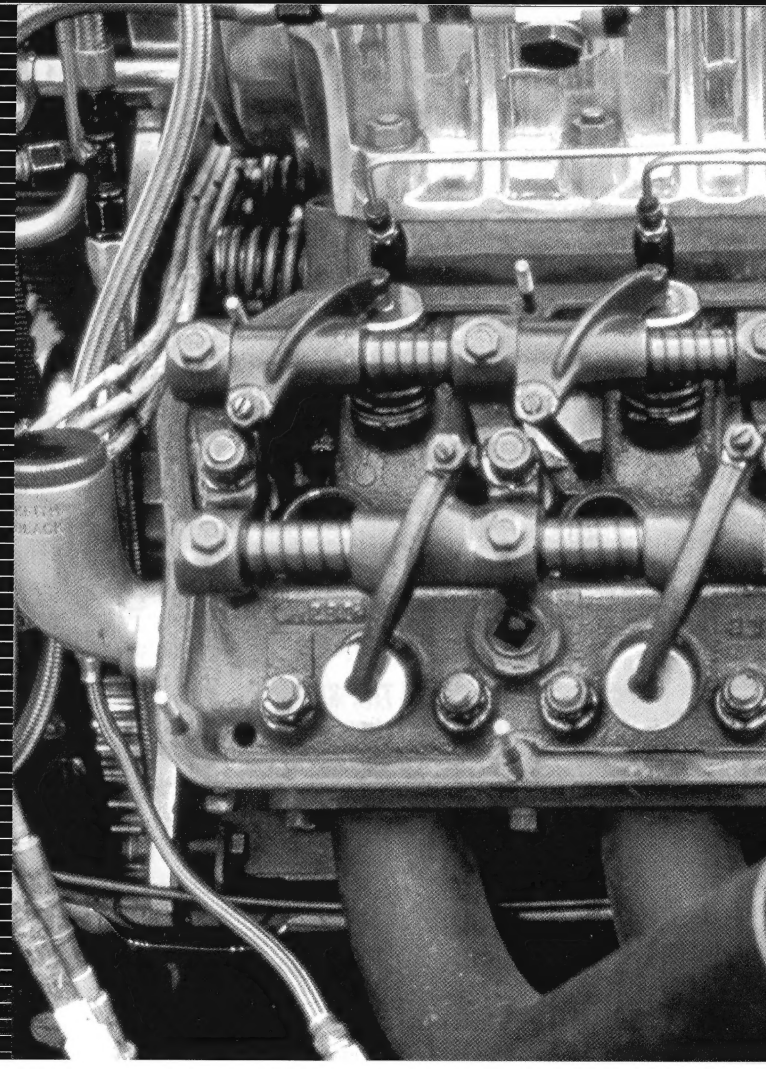


Game Instructions

*Injured
Engine*

IMAGIC

EDUCATIONAL SIMULATIONS



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Program by Tom McWilliams.
Graphics by Karen Elliott.
Technical Support by Dave Boisvert.*

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Mountain View, CA 94043

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You are the proud owner of a computer-simulated, four-cylinder engine. It has electronic ignition, a single barrel carburetor and is water cooled. With proper maintenance, it should run for 200,000 miles unless you allow it to become an **"Injured Engine."**

GET READY

Your **Injured Engine** disk has a standard version with six-color graphics on one side and an enhanced version with sixteen-color graphics on the other side. All Apple II computers will run the standard version. All Apple IIc computers or Apple IIe computers with an extended 80 column card will run the enhanced version.

- To load the *standard* version or enhanced version, place the disk in the drive with the label up.
- Turn the computer on. The program will load automatically.
- If you have either a IIc or the hardware to adapt a IIe to 16 colors, a message instructs you to turn the disk over and press a key. Otherwise, the standard version will load automatically.
- Leave the disk in the drive while the program is running.

NOTE: You can **not** load the enhanced side first.

CONTROLS

When the option screen first appears, select either keyboard, mouse or joystick mode by moving the arrow-shaped cursor to highlight the desired option using the left and right arrow keys, then hit the space bar to enter your selection.

If the keyboard mode is chosen, continue to use the left and right arrow keys to move the arrow-shaped cursor around the screen. The space bar will enter your selections.

If you select the other modes, use either the mouse or joystick to move the cursor around the screen. Press the mouse or joystick button in order to make a selection.

Two different simulations can be played.

ON THE ROAD or IN THE SHOP

"On The Road" simulation allows you to become familiar with the basic operation of an engine and its systems. You can learn to diagnose different engine problems and see what is needed to correct them.

Select from among three levels of difficulty by moving the arrow-shaped cursor to highlight a selection:

1,000 miles—easy
40,000 miles—medium
80,000 miles—hard












NOTE: Be sure to select the proper mode (joystick, mouse or keyboard) *before* entering choice of simulation.

Press the button or space bar to start the simulation. The more miles on the engine and its parts, the greater your challenge. To select the desired level of difficulty, move the cursor until your selection is highlighted, then press the space bar or button to start the "On The Road" simulation.

If you select the "In The Shop" simulation, you are presented with engine problems you are to correct as fast as you can. To select this simulation, move the cursor until "In The Shop" is highlighted, then press the space bar or button to start the "In The Shop" simulation time clock. You start with one engine problem and progress to repairing five problems. Your total time will be given after repairing the fifth problem.

ENGINE SYSTEM FUNCTIONS

To select icons, move the cursor to the desired box and press the button. To select the icons with the keyboard just press the appropriate key.

Keyboard	Mouse/Joystick	Function
	Icon	
T		Select, look at text
I		Inspect part(s)
R		Repair/replace part(s)
P		Look at price list
E, esc		Go to main screen
A,S		Scroll text back
Z,X		Scroll text forward
Y		Yes
N		No
O		Open throttle
C		Close throttle

ENGINE SYSTEMS

To repair and view engine systems, move the cursor on the main engine screen to the system you want to see. This system will then be highlighted. To go to that system screen, press the button or space bar.

Engine Part

Oil Pan
Pistons
Distributor
Carburetor
Air Cleaner
Radiator
Exhaust Pipe

System

Lubrication System
Combustion Chambers
Ignition System
Carburetor
Fuel System
Cooling System
Exhaust System

TEXT

The text begins with an overview of how a particular system functions and explains its individual parts if they are selected with the cursor. Text also describes symptoms of engine difficulties common to those parts. There is text for every part listed in each system. The text may be scrolled by moving the cursor to the top or bottom of the scroll bar and pressing the button. When using the keyboard press "A" to scroll text back, "Z" to scroll text forward, "S" to move one page up and "X" to move one page down.

INSPECT

When you inspect parts using the magnifying glass icon, the condition of the part is given. Inspecting parts costs money when playing the "On The Road" simulation, but adds time instead when playing the "In The Shop" simulation.

REPAIR/REPLACE

When you repair or replace a part using the wrench icon, maintenance will be performed and cost or time will be added depending upon the simulation chosen.

PRICE LIST

The clipboard icon will call up a price list showing inspect and repair prices for all parts.

ENGINE ICON

Selecting the engine icon will call up the main engine screen.

INSTRUMENT PANEL

Gauges on the instrument panel, once you learn how to read them, indicate how well or poorly the engine is running.

- If the RPM (Revolutions Per Minute) Gauge on the left begins to run over the 5000 RPM mark (the redline), this will eventually cause engine damage.

- The Oil Gauge should register within the brackets. A low reading, except when the engine is running at a low RPM, means too little oil pressure. A high reading indicates too much oil pressure.
- The Temperature Gauge should register at the middle bracket; lower means the engine is too cold and higher, too hot.
- The Battery Gauge should register just above center. Lower indicates that the battery is being discharged, while higher means that the battery is being overcharged.
- The Car Symbol serves as the pollution indicator. If clouds of exhaust start appearing, the engine is generating too much pollution and must be repaired. Observe the colors to diagnose the engine problem.
- Total Cost operates during the "On The Road" simulation. Efficient engines will be less expensive to run than inefficient engines.
- The Timer operates during the "In The Shop" simulation, where you are effecting repairs against a clock to keep costs down.
- During the "In The Shop" simulation, there will be a check box for each problem to be solved. After each problem is solved, its respective box will be checked.
- MPG (Miles Per Gallon) shows how the engine is utilizing fuel.
- Throttle. First select throttle using the cursor. Next hold down the button and move the mouse or joystick to adjust the throttle to the desired position, then release the button. When using the keyboard, press "O" to open or "C" to close.
- Start/Stop. Using the cursor, select "Start;" then push the button to start. After the engine is running, you may select "Stop" using the cursor and then pressing the button or space bar to stop.
- Options. Moving the cursor to "Options" and pushing the button or space bar brings you back to the option screen.

FEATURES

- To check the oil, use the dipstick.
- When the fan in the cooling system is inspected, the status of the fan/alternator belt is given.

HINTS

Certain parts make distinctive sounds when broken. Use these sounds to quickly identify a broken part. Remember: Some engine disorders can lead to other related difficulties. For example, a cracked radiator will lose coolant as the engine runs, causing the engine to overheat; this in turn damages other parts.

NOTES

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